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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,394	10/24/2003	Mikhail Godkin	10044-505001US / CST-0092	1651

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Gilman Clark & Hunter LLC
176 Federal Street, 4th Floor
Boston, MA 02110

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	PAPER NUMBER
2614	
MAIL DATE	DELIVERY MODE
04/25/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/693,394	GODKIN, MIKHAIL	
	Examiner	Art Unit	
	PHYLESHA DABNEY	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2012*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-3,5,7,10-20,25,26,34,36 and 38* is/are pending in the application.

5a) Of the above claim(s) *4, 6, 8-9, 21-24,27-33,35, 39, 40* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-3, 5, 7, 12-16, 18-20, 26, 34, 36* is/are rejected.

8)☒ Claim(s) *10,11,17,25 and 38* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

In view of the Appeal Brief filed on 8 April 2008, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is hereby set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claims **1-3, 5, 7, 10-20, 25-26, 34, 36, 38** are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim **16** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 16, the Applicant states there is a "cavity formed in each of the first and second portions of the core *having* a cross section along the longitudinal axis which is widest at the end face of the first portion of the core". It is not clear whether the Applicant's claim is teaching the first portion of the core to have a wider cross section than the second portion. As depicted in the drawings, the first and second portions of core have similar cross sections which seems to contradict the instant claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1-3, 5, 7, 12-16, 18-20, 26, 34, 36** are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamatsu (JP 61-177897 A).

Regarding claim 1, Nakamatsu teaches a linear actuator (Fig. 6) comprising a core (23, 24) having a longitudinal axis; a coil (28, 29, where coil structure 25 includes coil windings on each end) shaped for movement along the longitudinal axis of the core; and a magnet (31, 32) structure positioned along the longitudinal axis of the core; wherein the core includes first and second portions (33, 34), each including an end face and a cavity (near 14, 14') formed in the

end face having an axis of symmetry along the longitudinal axis of the core, and further wherein the first and second portions are positioned so that the end faces oppose each other and are separated by a gap (opening, 12, 12').

Regarding claim 2, Nakamatsu teaches the linear actuator of claim 1, further including a housing (21, 22) supported by core flanges (fig. 6) and positioned about the coil and the core.

Regarding claim 3 Nakamatsu teaches the linear actuator of claim 1, wherein the magnet assembly includes magnets (31, 32) of the same polarity facing the coil (25; 28, 29).

Regarding claim 5, Nakamatsu teaches the linear actuator of claim 3, wherein the magnets (31, 32) are shaped to be positioned outside of the coil (Fig. 6).

Regarding claim 7, Nakamatsu teaches the linear actuator of claim 5, further including a housing (21-22) supported by core flanges (supported by the rear yoke near magnets 31, 32) and positioned about the coil (25; 28, 29) and the core (23, 24; portions 33, 34), and wherein the magnets (31, 32) are supported by the housing.

Regarding claim 12, Nakamatsu teaches the linear actuator of claim 1, wherein the cavity (near 14, 14') formed in the second portion of the core has a curvilinear cross section along the longitudinal axis (figs. 4, 6).

Regarding claim 13, Nakamatsu teaches the linear actuator of claim 12, wherein the cavity (near 14, 14') formed in the first portion of the core has a curvilinear cross section along the longitudinal axis (figs. 4, 6).

Regarding claim 14, Nakamatsu teaches the linear actuator of claim 1, wherein the cavity (near 14, 14') formed in the first portion of the core has a cross section along the longitudinal axis which widest at the end face of the first portion of the core (figs. 4, 6 shows the core sectioned into quarters that curve inward to a smaller opening and wider at the end).

Regarding claim 15, Nakamatsu teaches the linear actuator of claim 14, wherein the cavity (near 14, 14') formed in the second portion of the core has a cross section along the longitudinal axis which is widest at the end face of the second portion of the core (figs. 4, 6 shows the core sectioned into quarters that curve inward to a smaller opening and wider at the end).

Regarding claim 16, Nakamatsu teaches the linear actuator of claim 1, wherein the cavity (near 14, 14') formed in each of the first and second portions of the core has a cross section along the longitudinal axis which is widest at the end face of the first portion of the core (as best understood from the Applicant's drawings, both the first and second portions have cross sections wider at the ends. Nakamatsu teaches in figs. 4, 6 that the core sectioned into quarters that curve inward to a smaller opening and wider at the ends).

Regarding claim 18, Nakamatsu teaches the linear actuator of claim 16, wherein the cavity (near 14, 14') formed in each of the first and second portions of the core has a curvilinear cross section along the longitudinal axis (figs. 4, 6).

Regarding claim 19, Nakamatsu teaches the linear actuator of claim 16, wherein the cavity (near 14, 14') formed in each of the first and second portions of the core has a cross section along the longitudinal axis which is widest toward the end face, and which progressively narrows along the longitudinal axis away from the end face (figs. 4, 6 shows the core sectioned into quarters that curve inward to a smaller opening and wider at the end).

Regarding claim 20, Nakamatsu teaches the linear actuator of Claim 16, wherein the cavity (near 14, 14') in each of the first and second portions of the core along the longitudinal axis is formed by removing circular regions of material of selected depths and selected diameters which are coaxial with the longitudinal axis, and further wherein the selected diameters of the circular regions decrease in a direction away from the end face (fig. 4, 6; top is circular as shown by fig. 4 and decreases is diameter towards the center).

Regarding claim 26, Nakamatsu teaches the linear actuator of claim 3, wherein the gap (12, 12') is formed in a plane transverse to the longitudinal axis, and the magnets (31, 32) are positioned to form a space between them which is aligned with the plane transverse to the longitudinal axis (fig. 6).

Regarding claim 34, Nakamatsu teaches a linear actuator (Fig. 6) comprising a core (23, 24); a coil (28, 29, where coil structure 25 includes coil windings on each end) shaped to be positioned about the core for movement along a longitudinal axis of the core; a magnet assembly (31, 32) including magnets of the same polarity facing the coil; and a housing (21-22) supported by core flanges and positioned about the coil and the core; and wherein the core includes first and second portions (33, 34), each having an end face, and the first and second portions are positioned along the longitudinal axis so that the end faces oppose each other and are separated by a gap (12, 12'), and further wherein a cavity (figs. 4, 6; cavity formed by depression of yoke sections 33, 34 and nozzle opening 14, 14') is symmetrically formed in each of the end faces along the longitudinal axis.

Regarding claim 36, Isvan teaches the linear actuator of claim 34, wherein the magnets (31, 32) are shaped to be positioned outside of the coil, and to be supported by the housing (21-22).

Allowable Subject Matter

Claims **10-11, 17, 25, 38** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYLESHA DABNEY whose telephone number is (571)272-7494. The examiner can normally be reached on Monday through Wednesday and Friday 10:30-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Davetta W. Goins can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P O Box 1450
Alexandria, VA 22313-1450

Or faxed to:
(703) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "Proposed" or "Draft" when submitting an informal amendment.

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

April 19, 2012

/PHYLESHA DABNEY/
Examiner, Art Unit 2614

/DAVETTA W. GOINS/
Supervisory Patent Examiner, Art Unit 2614